DEC. 1948

CLASSIFICATION CONFIDENTIAL CONFIDENTIAL

CENTRAL INTELLIGENCE AGENCY
INFORMATION FROM
FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

50X1-HUM

COUNTRY USSR

SUBJECT Scientific - Metals

HOW PUBLISHED Monthly periodical

WHERE PUBLISHED Moscow

DATE PUBLISHED Jan 1950

LANGUAGE Russia

DATE OF INFORMATION 1950

DATE DIST. 8 Aug 1950

NO. OF PAGES 1

SUPPLEMENT TO REPORT NO.

SOURCE Avtogennoye Delo, No 1, 1950.

RESULTS OF THE ADDITION OF MOLYBDENUM TO INDUSTRIAL STEELS

Engr I. Z. Kagan

Stainless steels of the 18-8 type (17-20 percent chromium, 8-10 percent nickel) belong to the nonmagnetic austenitic steels. These steels have high plasticity and strength, high chemical resistance, and good weldability. Therefore, they are used widely in manufacturing welded chemical equipment.

The addition of molybdenum increases chemical resistance in a boiling solution of acetic, phosphoric, formic, oxalic, citirc and lactic acids, in hot solutions of sulfuric acid under pressures up to 20 atmospheres, and in many other reagents. However, the addition of molybdenum affects the structure of austenitic steel since molybdenum promotes development of the ferritic phase. The nickel content has to be increased in order to preserve the stable austenitic structure. For example, with a molybdenum content from 2 to 4 percent, the nickel content should be between 9 and 14 percent.

The additon of molybdenum to 18-8 steel does not, however, revise the tendency of the steel to intercrystalline corrosion. Elimination of this factory requires the addition of titanium according to the well-known formula $Ti \geq 5(C-0.03)$.

Steel 18-8 with molybdenum possesses high creep strength and high strength under prolonged stress at 800 degrees centigrade. Parts made of this steel respond very well to machining, forging, and welding, and do not require any heat treatment.

Steel EI-432 has the following mechanical properties: ultimate strength 58 kilograms per square millimeter; yield strength 38 kilograms per square millimeter; elongation 50 percent; tested satisfactorily for inter-crystalline corrosion.

A new GOST provides for chrome-nickel-molybdenum-titanium steels with molybdenum contents of 2 and 3 percent.

- E N D -

CLASSIFICATION CONFIDENTIAL

STATE	X	NAVY	X	NSRB	DISTRIBUTION
ARMY	X	AIR	X	FBI	